

Après le déluge!

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The severe flooding that affected much of the country in June and July followed what we now know to be the wettest May to July period since records began in 1766. Much of the flooding occurred because drainage systems and some defences could not cope with the sheer quantity of water.

Whilst little reported, the Environment Agency's activities and previous investment to protect homes and businesses substantially reduced the impacts of this extreme event. Nevertheless, the effects were severe. Several people sadly lost their lives. 44,600 homes and 7,100 businesses were flooded. Transport infrastructure was disrupted, and many properties were without power and water for many days.

Recovery from such an event can take many months, as properties are dried out, cleaned, repaired and redecorated. Rural areas and businesses too have had to face the impacts of flooding, with many farmers suffering significant losses of livestock and crops.

Every flood provides a learning opportunity to examine the causes and identify areas for improvement. The summer floods highlighted a number of issues, many of which we were already tackling. Three of the most important challenges are urban surface water drainage, the need for a strategic overview role for all types of flooding and the need to protect critical infrastructure.

In many places, flooding occurred as a result of prolonged heavy rainfall, leading to surface water run-off and drainage systems being overwhelmed. Most of our sewers were built in Victorian times, for a population less

than half as large as it is today. Pressures on drainage infrastructure have also been increased by new development, infill of previously undeveloped land and increased levels of impermeable paving. To compound the problem, climate change is likely to make urban surface water flooding more common as rainfall is predicted to increase by 10-30% by the 2080s, and intensity could increase by up to 20%.

New development, however, offers the opportunity to look more holistically at the drainage issue. Sustainable drainage systems provide a more robust and flexible way to deal with urban flooding. They slow the movement of surface water through the built environment, emulating natural processes and reducing the impact of rainfall on the drainage system. However, such systems require long term maintenance and, at present, there is no legal clarity as to whose responsibility this is or who will fund it.

It is vital that there is clarification of responsibilities for inland flooding. Whilst local authorities and water companies are the key players for urban surface water flooding, no single organisation has a strategic overview role for flooding from all sources, including rivers, seas and surface water.

A national approach would have a number of benefits, co-ordinating methodologies and techniques for risk characterisation; aligning the design capacity of surface water systems with those of river and coastal defences; and maximising the contributions that 'whole-catchment' approaches to water management offers.



The vulnerability of critical infrastructure was also made obvious by experiences at Walham electricity sub-station during the summer floods. Our Receptors Vulnerable to Flooding project (2007) found that significant numbers of critical infrastructure facilities are at risk from flooding. This includes 15% of major energy installations, 14% of fire, ambulance and police stations, 9% of hospitals and health centres, and 57% of water and sewerage works, as well as numerous railway stations and lines, roads, telephone exchanges and schools.

Though the Civil Contingencies Act requires business continuity plans to be prepared, this does not extend to a specific duty to protect critical assets from flooding. For example, our experience suggests that most providers of these critical services do not have appropriate continuity plans in place to address all the potential impacts of major flooding.

To ensure that adequate progress is made, the Environment Agency is calling for a specific requirement for utilities and owners of critical infrastructure to take account of climate change adaptation to be included in the Climate Change Bill.

Of course, it is not only critical infrastructure that is at risk – homes also need to be adapted to climate change impacts such as flooding. For new developments in flood risk areas

we want to see resistance and resilience requirements included in Building Regulations. Over 5 million people, in over 2 million properties, already live in flood risk areas in England and Wales, yet most of these people have not taken any action to prepare for flooding.

We spend approximately £500m a year on flood risk management.

However, even with all the investment we put in, it is impossible to prevent flooding entirely. But by typing in their postcodes to the Flood Map on the Environment Agency website, people can check whether they are in a flood risk area, and can follow advice to reduce the risk of flooding to their homes. Simple resilience measures can reduce the average cost of a household flood from £26,000 to below £10,000.

The summer floods demonstrated some hard lessons.

The biggest lesson is that adaptation to the impacts of climate change, not just floods but also heat and drought and impacts on health, must be as much at the forefront of all our agendas as reducing greenhouse gases to mitigate climate change.

The Draft Human Tissue and Embryos Bill

Phil Willis MP

The 1990 Human Fertilisation and Embryology Act – which built on the outstanding work of Lady Warnock and her committee – created a legislative platform for *in vitro* fertilisation to flourish in the UK for almost two decades. Indeed, despite many legal, ethical and procedural challenges, the Act has stood the test of time and has allowed not only clinical practice in IVF to flourish but significantly embryo research making the UK a world leader in this key area.

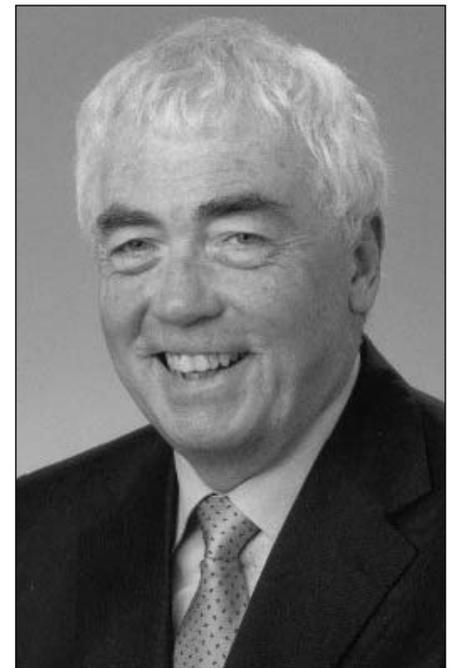
The Human Fertilisation and Embryology Authority (HFEA) set up as an arms length regulatory body has generally served the human fertilisation and embryology community well. The HFEA has many critics and its cause was not helped by the recent Taranissi case, but as the former Science and Technology Select Committee found when looking at Government proposals to regulate ‘Hybrids and Chimera Embryos’, the UK regulatory framework is greatly admired around the world.

The need to re-examine the legislation and the regulatory framework came, not from a sense of failure, but from its success. A highly influential Report, Human Technologies and the Law, produced in 2005 by the Science and

Technology Select Committee, urged the Government to review the legislation to take account of advances in research and clinical treatment. Though slow to react the Government was forced into action when the HFEA, faced with potential new research requests for work on human-animal embryos, sought Parliamentary guidance. A Government White Paper produced in December 2006 proposed to ban the creation of cytoplasmic hybrid embryos – an organism consisting of at least two genetically different kinds of tissue as well as other kinds of interspecies embryos.

The outcry that resulted from the research community prompted the Science and Technology Committee to examine the proposals and conclude that regulation within a permissive legal framework was a more satisfactory way to proceed. The Department of Health listened and in July produced a Draft Human Tissue and Embryos Bill which proposed to allow by statute some research on a limited group of interspecies embryos.

Of course the Draft Bill also took the opportunity to update the law with regard to IVF treatment, taking into account research developments and societal changes. The Draft Bill sought



to clarify issues as controversial as embryonic sex selection, the welfare of the child and removing the need for a father, IVF treatment for same sex couples, the register and confidentiality, surrogacy, saviour siblings, egg and sperm donation, embryo storage and permission to use techniques such as mitochondrial (cytoplasmic) transplantation.

In addition the Government sought to create a new regulatory authority, the ‘Regulatory Authority for Tissue and Embryos’ (RATE) by essentially combining the HFEA with the Human Tissue Authority (HTA).

The Government was right to seek pre-legislative scrutiny for such complex and potentially divisive proposals and I was privileged to chair the Draft Bill Committee which